

Special Feature 1

Subaru Pursues
World Class Safety
Performance



Special Feature 1 | Subaru Pursues World Class Safety Performance

Subaru Pursues Ultimate Safety

Pursuing safety performance from all directions with the aim of achieving zero traffic accidents

Subaru has worked to build cars that prioritize safety with the concept that everyone should enjoy comfortable mobility with peace of mind all the time. SUBARU ALL-AROUND SAFETY, the basic concept for this means that we ensure safety under all environments. In order to achieve this, Subaru pursues all angles of safety from four directions of Primary Safety, Active Safety, Pre-Crash Safety, and Passive Safety.

Primary Safety is based on an approach that enhances safety through innovation in initial and basic design techniques for the automobile form and operability. Subaru pays meticulous attention to the details of the instrument panel and seat design, including visibility design with a focus on building cars that facilitate safe and concentrated driving.

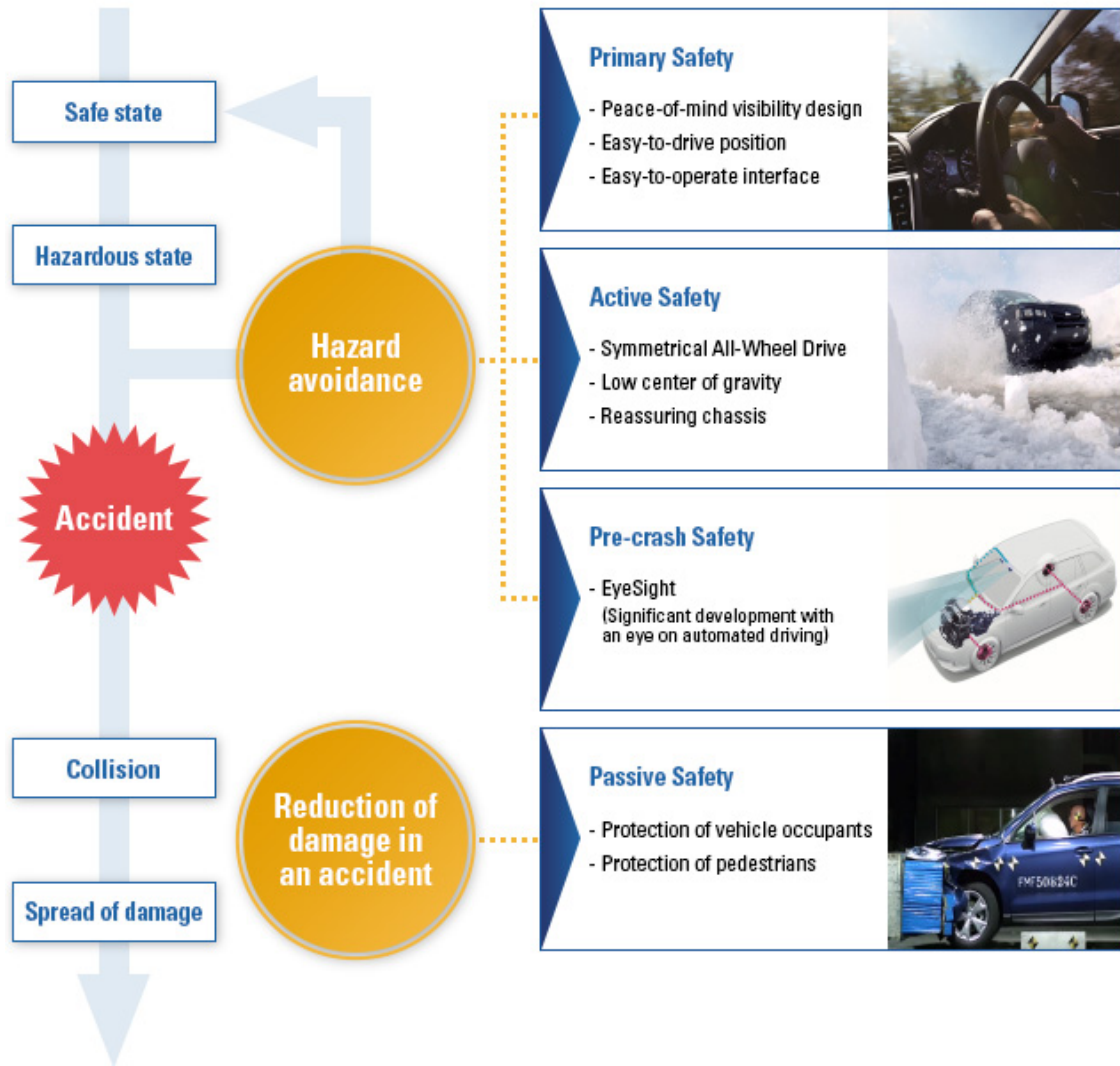
Active Safety is safety technology that attempts to prevent accidents, assuming that accidents may occur. Based on the idea that the ultimate drive fosters safety, we use our unique technologies such as our horizontally-opposed SUBARU BOXER engine with a low center of gravity and Symmetrical All-Wheel Drive as the basis for exhaustive refinement of vehicle performance to “run, turn and stop” in accordance with the driver’s intentions that enables users to drive with confidence.

Pre-crash Safety is technology that supports the driver’s driving operations and predicts hazards with the aim of helping reduce damage in the event of a collision. Subaru was quick to focus on Pre-crash Safety and has promoted its development. EyeSight, the result of this development, accurately judges conditions in front of the vehicle using information obtained from a stereo camera. By linking the engine, transmission and brakes, it supports safe driving in a variety of scenarios, including hazard avoidance and damage reduction, prevention of accidental starting caused by pedal operation errors, and reduction of fatigue on long-distance drives.

Passive Safety is technology that provides people with protection from collision impact in the event of a collision. With an original Ring-Shaped Reinforcement Frame Body Structure and engine layout, etc. for mitigating collision impact on vehicle occupants, cabin occupants are, of course, protected. But Subaru also considers collisions with pedestrians in its pursuit of collision safety performance. This safety performance is highly acclaimed in collision safety assessments in and outside Japan.

Going forward, Subaru aims to achieve zero traffic accidents, which is the ultimate objective of automobile manufacturers, by further evolving our all-around safety performance.

■ Safety Philosophy and Four Focus Areas



Subaru Global Platform Eyeing Safety in the Future

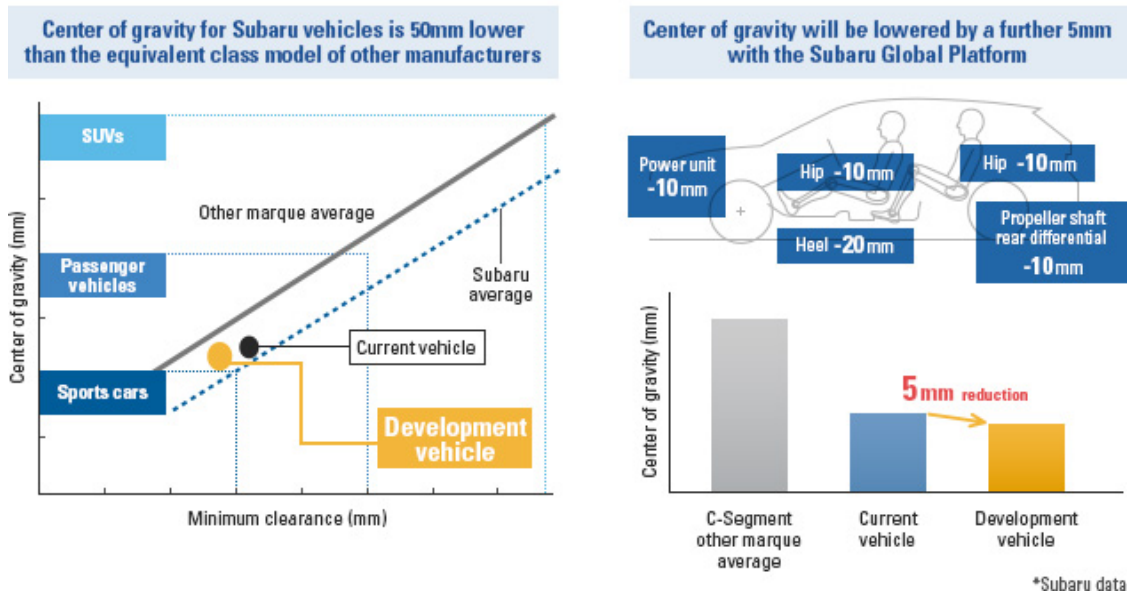


Dramatic improvement in vehicle driving safety to achieve world class hazard avoidance performance

Starting with the next-generation Impreza to be launched in 2016, Subaru will adopt the new Subaru Global Platform for all its independently developed cars. The Subaru Global Platform has been developed in anticipation of the evolution in cars through to 2025. One of our big objectives for completely revamping our platform, which is the basic frame of a car, is to further evolve our world class safety performance, which is a major feature of Subaru vehicles.

For example, we have achieved safe driving performance under all environments and weather using our unique technologies such as the low center of gravity package based on the horizontally-opposed SUBARU BOXER engine and full-time All-Wheel Drive. Steps such as increasing the rigidity of the body and strengthening the undercarriage demonstrate a significant effect in further improving this Active Safety performance. Therefore, for the new platform, we have achieved substantial improvements in the rigidity of the body and the chassis, further lowered the center of gravity and developed the undercarriage through a revision of suspension design and other means. As a result, based on our tests, we have achieved hazard avoidance performance (the speed at which a hazard can be safely avoided by swerving in an emergency) of 92.5km/h in the next-generation models that adopt the new platform compared with 84.5km/h for current models, which is a performance that rivals premium European sports cars.

■ Active Safety



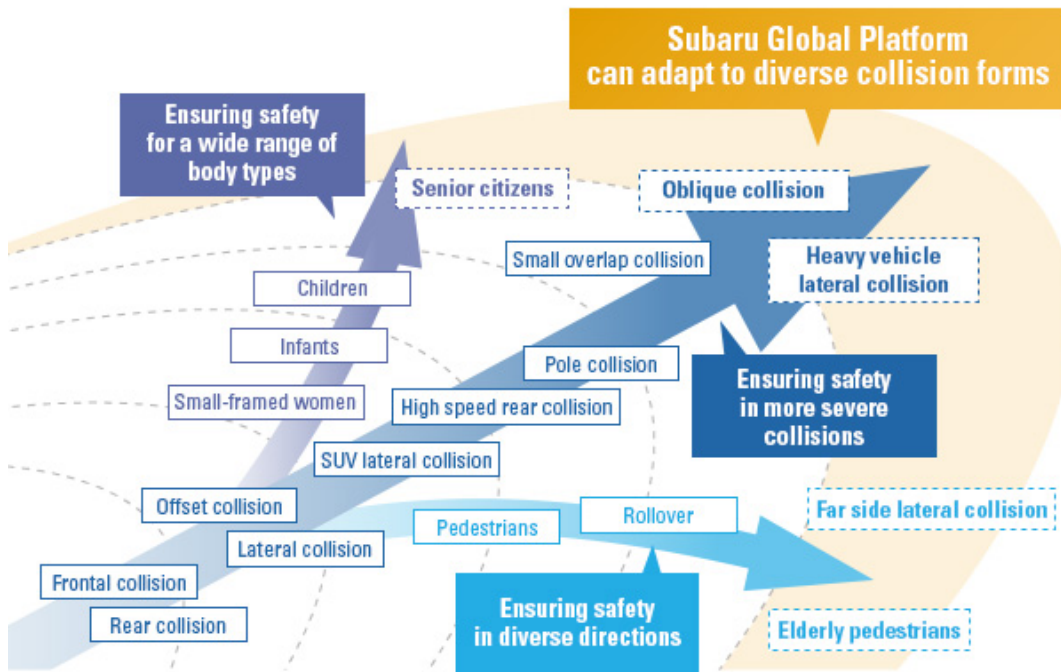
Increasing impact energy absorption by 40% to lead further evolution in collision safety performance

Ever since beginning our original collision safety tests in the days of the Subaru 360, Subaru has always pursued collision safety performance that is one step ahead of its day. As a result, the collision safety performance of current Subaru vehicles receive the highest rank of assessment in all performance assessments by the leading third party organizations, including JNCAP in Japan, IIHS in the U.S., and NCAP in Europe.

The adoption of the Subaru Global Platform will make a significant contribution to further enhancing Passive Safety performance. The new platform has dramatically improved the strength of the body through such means as increasing the rigidity of the body and chassis in addition to optimizing the frame construction, duplicating load transmission routes, and extending use of high-strength materials to increase impact energy absorption in a collision by about 40% compared with current vehicles. Moreover, the design is expected to improve performance by another 40% through further adoption of increased strength and non-ferrous materials to enable safety to be ensured in more severe collisions and for vehicle occupants with a wide range of body types as well as pedestrians in the future.

Going forward, Subaru will continue the further evolution of world class collision safety performance through adoption of the new platform and development of original safety technology.

■ Diversification and Growing Complexity in Forms of Collisions



EyeSight Creating the Future of Safety



Pursuing a “car that avoids crashes” with the aim of achieving zero traffic accidents

Eliminating traffic accidents is the ultimate goal for automobile manufacturers, and it is also an important social mission. Subaru, which has prioritized safety performance since the company’s founding, was early to focus on the potential of Pre-crash Safety, which predicts hazards and reduces damage, as the first step toward achieving zero accidents, and we have worked to develop original driving assist technology.

The outcome of this work is EyeSight, a pioneer in pre-collision braking systems, which has also become another word for a “car that avoids crashes.” EyeSight is equipped with a stereo camera that equates to human “eyes” and a microprocessor that contains a 3D image processing engine/image recognition software/vehicle control software equating to the “brain” and accurately recognizes cars, pedestrians, bicycles, white lines on the sides of roads, etc. in its direction of travel. When it perceives a hazard, it attempts to avoid a collision or reduce damage by activating a warning indicator or pre-collision braking.

Moreover EyeSight Ver. 3, introduced in June 2014, achieved the introduction of color for the stereo camera, expansion of the viewing angle and distance, and improved performance of the 3D image recognition engine, making it able to recognize even more targets quickly and accurately. As a result, compared with Ver. 2 (speed difference of 0 - 30km/h with preceding vehicle), the pre-collision braking now operates in a wider speed range (0 - 50km/h, and approximately 35km/h for pedestrians). Moreover, in addition to the AT accidental starting prevention control function which not only works for moving forwards but also for reversing, it provides an array of driving assist functions that produce a safe and comfortable drive such as the Active Lane Keep function that keeps the vehicle in the middle of a lane and suppresses deviation from the lane when driving on the expressway.

Many automobile manufacturers have now adopted driver assist systems such as pre-collision braking, but EyeSight, with utility and reliability that have been refined from an early stage using test courses that reproduce diverse road environments, has obtained the highest rank of assessment in preventive safety assessments in and outside of Japan. In fact, in independent calculations based on data from the Institute for Traffic Accident Research and Data Analysis (ITARDA), vehicles fitted with EyeSight Ver. 2 are having a significant effect on the prevention of traffic accidents in the real world, including a reduction of approximately 60% in accidents resulting in injury or death, and a reduction of approximately 80% in rear-end collisions between cars.

■ EyeSight Installation Rate

Subaru can install EyeSight on nearly all models.

Can be installed on approximately **90%** of models. (7 out of 8 models)



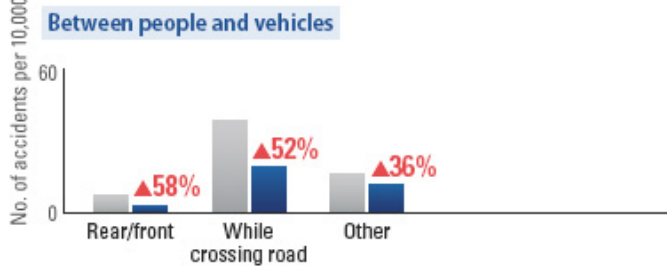
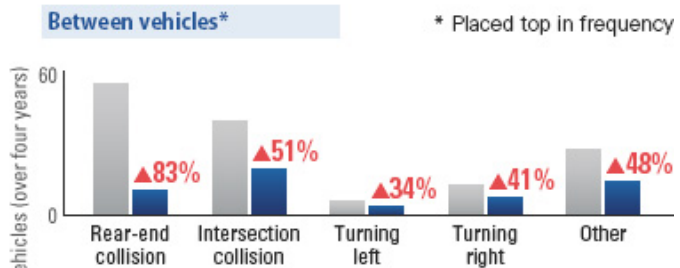
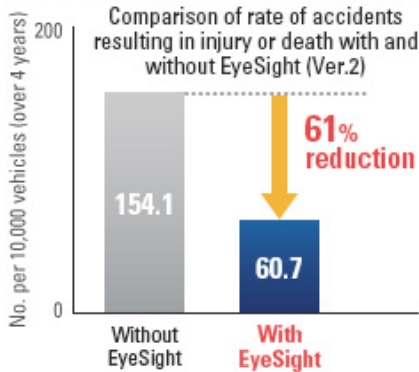
* Can be installed on all models except SUBARU BRZ out of the Legacy, LEVORG, WRX, Impreza, SUBARU XV, Forester, Crossover 7, and SUBARU BRZ.

EyeSight is installed by many customers on models for which it is possible. * Subaru data

Destination	Japan	Australia	Europe	U.S.
Installation rate for January – December 2015, and model with highest installation rate by destination	83%	62%	96%	31%
	100% for Legacy, LEVORG, WRX, and Crossover 7	100% for Legacy	96% for Outback	57% for Outback

■ EyeSight Accident Reduction Data

Approximately 60% reduction in accident rate for accidents resulting in injury or death



* Independent calculations from data on accidents that took place over the four years from 2011 – 2014 among vehicles sold between 2010 and 2013 in which installation of EyeSight (Ver. 2) is possible based on Institute for Traffic Accident Research and Data Analysis (ITARDA) data. There were 2,234 accidents.

* Calculates the number of accidents resulting in injury or death per 10,000 vehicles with and without EyeSight (over four years). Of the target vehicles, there were 246,139 with EyeSight (Ver. 2) and 48,085 without it.

Accelerating evolution of EyeSight with the aim of human-centered automatic driving

Presently, the development of automatic driving technologies is gathering momentum among automobile manufacturers and IT companies in and outside of Japan. For Subaru, where our starting point is “building human-centered cars,” the goal of developing automatic driving technologies is not “to make the car drive instead of the person,” but strictly to “reduce traffic accidents to zero.” Based on this technical concept, we will continue to provide useful automatic driving and driving assist systems at a price that many customers can afford by improving the fundamental safety performance of our cars and further improving the performance and increasing the functions of EyeSight.

In terms of specific plans, we will make a congestion tracking function feasible for EyeSight on automobile-only roads from 2017. This function will use EyeSight to assess the movement and curve of the leading vehicle when the expressway is congested and automatically control acceleration, braking, transmission and steering. It is intended to achieve automatic driving in the same lane in a speed range of 0km/h – 65km/h. Further in 2020, we will add an autopilot function to EyeSight using radar in a plan to make automatic driving, including lane changing, feasible on automobile-only roads.

At Subaru, we will continue to further improve the accident avoidance performance of Subaru cars in the future by prioritizing the development of driving assist functions targeted at situations that tend to lead to accidents. We will naturally pursue zero accidents while also aiming to achieve Subaru-style automatic driving that delivers “enjoyment and peace of mind” to vehicle occupants.

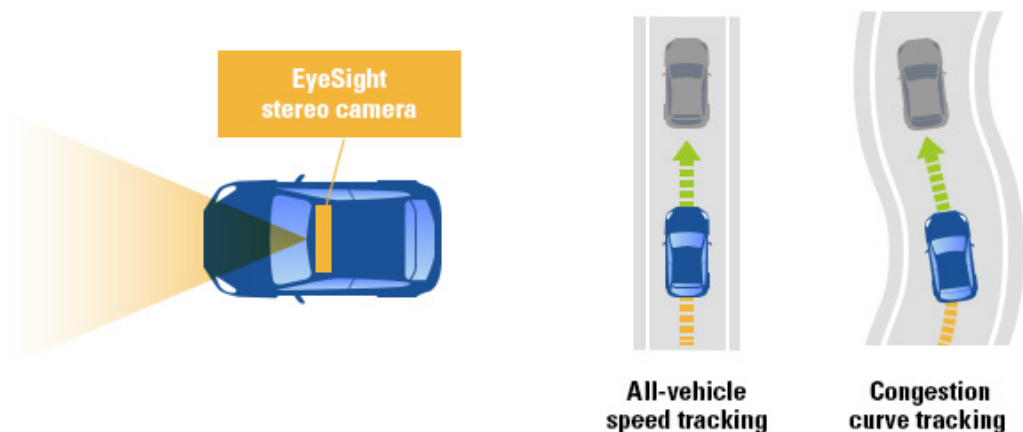
■ Congestion Tracking Function (TJA: Traffic Jam Assist) on Automobile-only Roads

Semi-automatic driving
(Level 2)

Scheduled for 2017 launch

A simple system that evolves EyeSight to achieve a highly practical congestion tracking function

A tracking function that achieves lane maintenance at low speeds (0 – 65km/h) in addition to all-vehicle speed tracking function and Active Lane Keep (lane maintenance at 65km/h and faster)

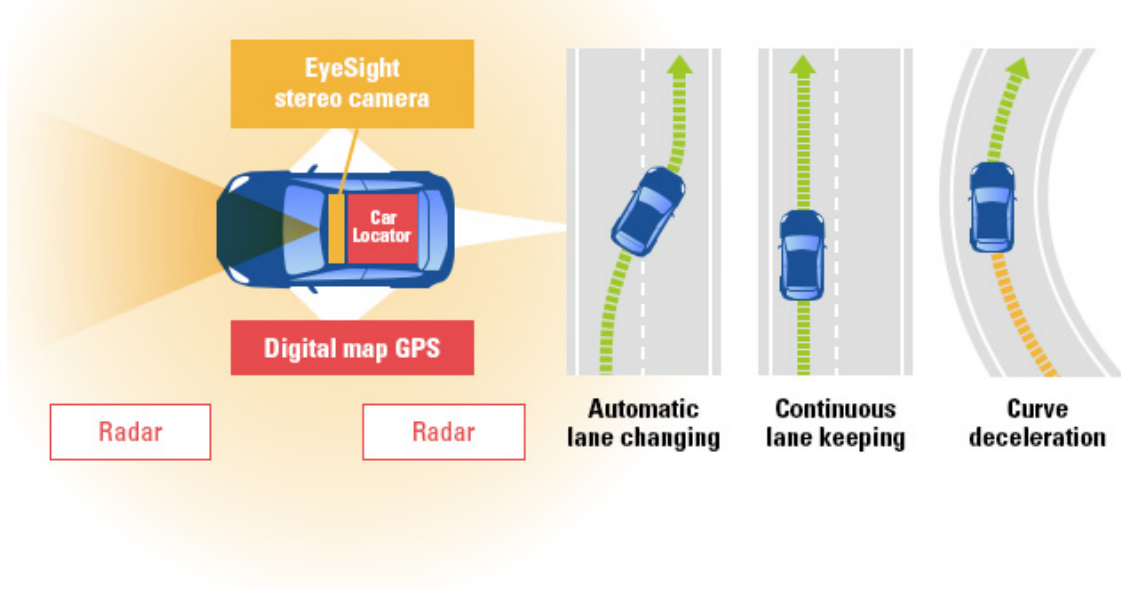


■ Expressway Automatic Driving (Autopilot)

Automatic driving
(Level 2)

Scheduled for 2020 launch

Achieving reliable automatic driving at low cost by adding the minimum devices to EyeSight, which has many functions



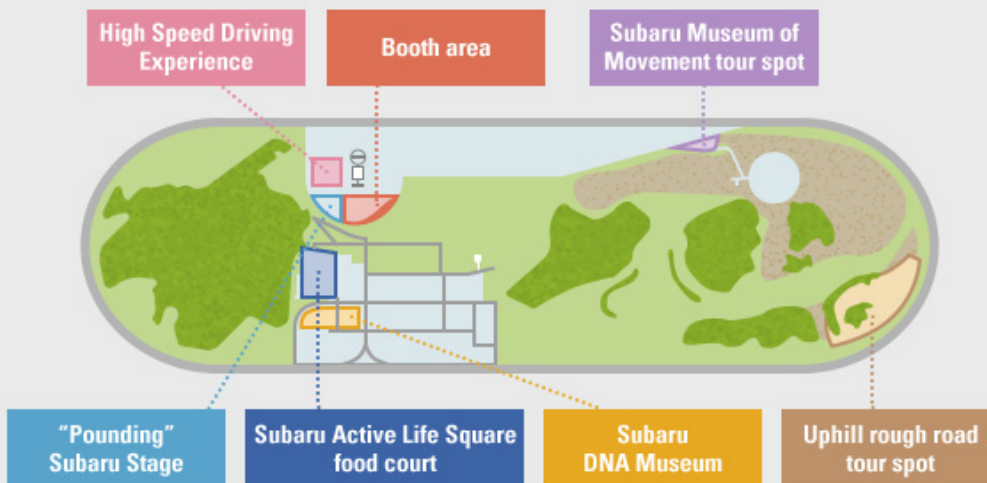
Special Feature 2

Fan Meetings Connecting Subaru and Users



Summary of SUBARU FAN MEETING 2016

- Date: Sunday, March 27, 2016, 10.00am – 4.00pm
- Venue: Subaru Test & Development Center (SKC), Fuji Heavy Industries, Ltd.
- Entry conditions: People who applied to a specially established site during the application period and were selected as winners



SUBARU FAN MEETING 2016 was held on Sunday, March 27, 2016 at the Subaru Test & Development Center (SKC) in Sano City, Tochigi Prefecture. It was the first time for the event, which attracted some 2,500 users.

The FHI Group has established a policy of “Enhancing the Subaru brand” in our Mid-Term Management Vision Prominence 2020, and we are working to build stronger ties with our fans as part of that.

The objective of the fan meeting was to deepen the ties between users and Subaru through unique SKC events such as the Subaru DNA Forum that provided interaction with development staff, the Owners’ Meeting where the developers of each model (PGM) talked development secrets, and the High Speed Driving Experience.



FHI President Yasuyuki Yoshinaga welcoming users



Owners’ Meeting

Subaru DNA Forum Connecting Users and Development Staff with the Concept of Safety



The Subaru DNA Forum had two parts. The first part was the Subaru DNA Presentation which discussed Subaru's history of commitment to fundamental performance and safety and the monozukuri (making things) spirit in our DNA, which has been handed down to automobile development today. Many users took part and listened with great interest.

The second part was the Subaru DNA Seminar, where booths were set up based on the five themes of 1.6i intelligent "DIT," the pleasure of driving, collision safety performance, EyeSight, and design concepts with a panel discussion. There was a lively exchange of opinions between development staff, mainly engineers, and users.

At every booth, we received many diverse opinions from the unique point of view of users in areas such as the approaches and positions of development staff and initiatives in development and testing.

■ Collision Safety Performance booth

Used test vehicles and dummies to explain all the scenarios required in collision testing in order to save lives. Users experienced the rigor of collision testing.



■ EyeSight booth

Displayed the whole booth shot by EyeSight on a screen. Users found out directly how EyeSight actually recognizes objects.



Thank you to everyone who visited us.

